

In the Specification

On page 1, please replace paragraph 0001 with the following new paragraph:

[0001]        The present application is a continuation of U.S. Application No. 10/425,136, filed April 28, 2003, which is a continuation of U.S. Application No. 09/850,422, filed May 7, 2001, now U.S. Patent 6,554,198, both of which are incorporated herein in their entirety by reference.

On page 6, please replace paragraph 0020 with the following paragraph:

[0020]        The following description will hereinafter refer to the drawings, in which like numerals indicate like elements throughout the several figures. FIG. 1 is a pictorial diagram of an illustrative system 100 for implementing the Variable Air Volume (VAV) temperature control algorithm of an exemplary embodiment of the present invention. The system 100 comprises a VAV box 102, an airflow control damper 104, an airflow sensor 106, a micro-controller 108, and a room temperature sensor 110. The flow control loop measures the airflow into a room, using measurements from the airflow sensor 106. Airflow measurements are used to calculate the slope of the airflow damper response curve (change in flow per unit of time) every time the airflow control damper 104 moves for a measured period of time. For example, the flow control loop may be configured to calculate the change in airflow when the control damper ~~106~~ 104 moves for at least one second. A calculated change in airflow can then be used to predict how long the airflow control damper 104 must move in order to deliver the appropriate flow rate needed for maintaining the desired room temperature setpoint.

On page 6, please replace paragraph 0020 with the following paragraph:

[0021] If the temperature control loop makes a substantial change in the airflow setpoint, the nonlinear characteristic of the damper response curve may cause the predicted damper movement time, which is based upon the slope of the damper response curve at the current operating point, to be incorrect.- Thus, in accordance with the present invention, when large setpoint changes occur, an instantaneous reading is used to control the movement of the airflow control damper 104. In this situation, the airflow control damper 104 is moved until another instantaneous airflow is measured that is near or at the new airflow setpoint. Then, the airflow control damper 104 is stopped and an average airflow reading is taken over a particular period of time. At this point, the flow control loop has determined that the actual airflow in the room is near the airflow setpoint, but the flow control loop has not determined the exact damper adjustment that is required to reach the airflow setpoint. The exact duration of the damper movement or adjustment for reaching the desired airflow setpoint is determined using the time duration of the initial damper movement and the average change in airflow during that time duration. From these measurements, the flow control loop determines the sensitivity of the airflow control damper 104 (the slope of the damper response curve). The sensitivity of the airflow control damper 104 is determined in terms of CFM or flow rate per second movement at a particular area on the damper's response curve.

On page 11, please replace paragraph 0039 with the following paragraph:

[0039] At step 212, the actual airflow is measured and the error between the airflow setpoint (from step 210 or step 211) and the actual flow measurement is calculated. The actual airflow measurement is preferably measured as an average over a predetermined period of

time. Next at step 214, the runtime of the airflow control damper 104 is predicted. In one embodiment of the present invention, the predicted runtime of the airflow control damper 104 is calculated by dividing the error between the airflow setpoint and the actual airflow by the slope of the damper response curve. In the initial pass through the method 200, the slope of the damper response curve is set to a predetermined value or is calculated, for example, by dividing the maximum CFM by the predicted runtime of the airflow control damper 104. For any other iteration through the method 200, the slope is calculated by dividing the measured change in average airflow (see steps 226 & 228 below) by the actual runtime of the airflow control damper 104 from 104 from the most recent damper movement.